

## **REMARKS**

The sequence for the Remarks given below will follow the sequence of items set forth in the Office Action.

### **I. Claims**

Claim 25-35 remain in the application. No claims have been amended or cancelled. No new claims have been added.

### **II. Information Disclosure Statement**

With regard to the "Information Disclosure Statements" filed along with this divisional Application, when this application was filed applicants merely supplied a copies of the Information Disclosure Statement (Form PTO-1449) applicants filed in the prior/parent cases described below, and Notices of References Cited [Form PTO-892 (Revised)] applicants received from the Patent Office (Examiners Karl Group and Christopher Fiorilla). When the present application was filed, applicants merely enclosed copies of the above forms without a cover letter. Applicants request that the Examiner accept the clean copies provided herewith along with a cover letter. (Note that the art cited by Examiner Group is identical with that disclosed in Applicants PTO-1449 form.)

With regard to supplying a copy of foreign patent documents and non-patent literature publications, no copies of these were supplied with the application because applicants deemed that they were not required under 37 CFR 1.98(d) because the present application is a division of prior U.S. Patent Application No. 10/122,266, filed April 11, 2002, and titled FLUORIDE CRYSTALLINE OPTICAL LITHOGRAPHY LENS ELEMENT BLANK, which in turn is a continuation of U. S. Patent Application, Serial Number 09/835,451, filed April 16, 2001 entitled FLUORIDE CRYSTALLINE OPTICAL LITHOGRAPHY LENS ELEMENT BLANK, by Mayolet et al. However, in the event that the foreign patent and literature publications referenced in Applicant's Form 1449 are not in any of the prior application folders, applicants will supply such art. Applicants undersign attorney would appreciate a telephone call if such references are needed.

### **III. Judicial Double Patenting Rejection**

A non-statutory double patent rejection base has been entered in the application over U.S. Patent No. 6,699,408, formerly application No. 10/122,266. The present case is a timely-filed division of U.S. Patent No. 6,699,408. Consequently, the double patent rejection can be overcome by means of a terminal disclaimer over the term of U.S. Patent No. 6,699,408. A Terminal Disclaimer over the term of U.S. Patent No. 6,699,408 is enclosed with this Response.

### **IV. 35 USC § 112, First Paragraph, Rejections**

Generally, claims 25-35 are rejected under 35 USC §12, first paragraph, for failing to comply with the written description requirement. Applicants traverse the rejection.

Each rejection will be treated separately. Where applicants believe support is present in the application this will be noted. Any amendments made to the claims in order to achieve compliance with the written description will be described. Further, those skilled in the art would know how to measure light transmission through a metal fluoride lithography crystal such as a calcium fluoride crystal. The undersigned attorney also apologizes for the manner in which the *previous attorney* wrote the specification. The subject matter relevant to the Examiner's rejections is present in the specification, but it is scattered throughout.

1. The Examiner has stated that no support can be found for the newly claimed "measuring the absorption to provide a qualified lens" (claim 26).

Applicants submit that support can be found in the specification on page 12, lines 15-18 ( in a general statement) and on page 7, line 27 to page 8, line 28 (detailed statement). Page 7, line 26 to page 8, line 2, describes the use of VUB transmission measurement as illustrated in Figure 6 to measure to determine a member with a low oxygen content. Page 8, lines 3-28 describes measuring the lead content, with particular reference to Figure 7 which illustrates the luminescence spectrum of a lead containing sample when excited by 203 nm light. The absorption characteristics of the member are given on page 8, lines 9-11 and page 9, lines 17-20.

Therefore, in view of the foregoing description within the specification, applicants submit that the written description requirement is fulfilled.

2. The Examiner has stated that no support can be found for the newly claimed 'exposing [to a radiation source] and detecting diffracted radiation] to provide a qualified lens' (claim 31).

Applicants submit that support can be found in the specification on page 5, line 6, to page 7, line 6. In particular, applicants refers the Examiner to page 6, lines 1-3, wherein the specification states that diffractometric techniques described in the specification can be used to meet subgrain boundary requirements for a suitable crystal; and to page 5, lines 16 *et seq.* which describe is use of synchrotron radiation to examiner the local topography of a crystal. Crystals having the subgrain boundary of less then 2 minutes as mentioned on page 6, line 1, and the properties as mentioned in claim 3 per the specification on page 9, lines 17-23, are crystals in accordance with the invention. Note that the properties mentioned in claims 31 are those mentioned on page 9, lines 17-23.

Therefore, in view of the foregoing description within the specification, applicants submit that the written description requirement is fulfilled.

3. The Examiner also states that no support could be found for the qualifying method described in claim 25(b). Applicants refer the Examiner to the specification on page 5, line 6, to page 7, line 6. These lines describe detecting radiation diffracted by a crystalline member. Page 6, lines 1-3 specifically mentions diffractometric techniques.

Therefore, in view of the foregoing description within the specification, applicants submit that the written description requirement is fulfilled.

4. The Examiner also stated that no support can be found for the claim 26 limitation that "the exciting (line 4) of the member is part of measuring the absorption spectrum" and that it appears that these are two different tests. Applicants refer the examiner to page 8, lines 7-8. Applicants believe that the Examiner's problem with this is the use of the word "exciting".

Luminescence is a general term which describes any process in which energy is emitted from a material at a different wavelength from that at which it is absorbed. Luminescence in minerals provides valuable information about a

mineral's morphologic history, growth mechanism and atomic structure variations at a crystal's surface. It occurs in three stages, namely, absorption of external energy or irradiation, energy transfer, and visible light emission. Mineralogists usually study photoluminescence and cathodoluminescence via absorption, emission or excitation spectroscopy. Thus one can expose a crystalline member, blank, optical element, etc. to electromagnetic radiation such as at 203 nm light and measure transmittance and/or luminescence. The specification on page 7, line 27 to page 8, line 28, describes the use of VUV light and the measurement of both luminescence and transmission.

Therefore, in view of the foregoing description within the specification, applicants submit that the written description requirement is fulfilled.

5. The Examiner also states:

"From the sentence spanning pages 8-9 of the specification, one should not use 193 nm data to qualify the 157 transmission data. Thus it would seem that Applicant would need an explicit support/suggestion the 200-220/203/205 data could be used for qualifying a specific 157 nm level."

Applicants believe that the specific statement the Examiner mentions is not necessary in view of the information found throughout the specification indicating what are the necessary requirements for an acceptable crystal blank/member/element. On page 9, lines 6-12, applicants state generally that both purity and crystal quality are necessary to qualify a crystal for optical lithography. The qualifications are given throughout the specification. For example, on page 9, lines 17-23, applicants give absorption coefficient data various wavelengths, lead absorption requirements, cerium absorption requirements, average birefringence requirement and subgrain distortion boundary angle requirements. On page 9, lines 23-31, applicants give impurity requirements. Figure 6 illustrates the acceptable transmittance of the acceptable sample C1 compared to the unacceptable samples A1 and B1 with regard to oxygen content.

Therefore, in view of at least the foregoing statements and information within the specification, one skilled in the art would understand how the data present in the specification should be used to determine a qualifying crystal.

**V. 35 USC § 112, Second Paragraph, Rejections**

1. Claims 27 and 31-35 are rejected as being indefinite for failure to particularly point out and distinctly claim the subject matter applicant regarded as the invention. Applicants traverse the rejection.

Regarding claim 27, applicants submit that claim 27 is clear when read in light of the Fig. 6 and the specification on page 7, line 27 to page 8, line 8. One skilled in the art would understand that in order to have a suitable crystal the absorbance in the 140-150 nm range should be minimum as illustrated and not rising as shown by Fig. 6.

Regarding claim 30, the claim is dependent in claim 26 and further limits it by specifying that the member is subjected to a radiation source and diffracted radiation is detected as opposed to, for example, transmitted radiation as one might measure to obtain the transmittance characteristics of the member. In addition, claim 30, in contradistinction to the Examiner's statement, does specify the "member" at the beginning of the "wherein" clause which recites "... wherein measuring said fluoride crystalline member includes ..."

Regarding claim 31, claim 31 is directly dependent on claim 25. Claim 25 at (b) recited detecting radiation diffracted by the crystalline member". the beginning of the claim 31 "wherein" clause recites "... wherein detecting radiation diffracted by the crystalline member includes" which is clearly the same language as in claim 25 and would be understood by one skilled in the art as referring back to claim 25 at (b) with the further limitation as specified in claim 31.

Applicants respectfully submit that in view of the foregoing facts and arguments, claims 27 and 31-35 clearly and distinctly point out what is claimed as the invention, and in addition further limit the claims upon which they are dependent as required.

Therefore, in view of the foregoing facts and arguments, applicants respectfully submit that it is proper to withdraw the 35 USC § 112, second paragraph, rejection of claims 27 and 31-35.

any amendments to the claims or specification that would facilitate prosecution, applicants further requests that the Examiner call him.

5 October 2005  
Date

Respectfully submitted,

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<p><b><u>CERTIFICATE OF MAIL</u></b> <b><u>UNDER 37 C.F.R. § 1.10</u></b></p> <p>I hereby certify that this paper and any papers referred to herein are being deposited by First Class Mail to U.S. Patent and Trademark Office at P.O. Box 1450, Alexandria, VA 22313-1450 on:</p> <p><u>5 October 2005</u></p> <p><u>Walter M. Douglas</u> <sup>Date</sup> <u>5 October 2005</u></p> <p>Walter M. Douglas Date</p>
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